Applicant: XIAOHUA SHI, BU QI CHENG AND GUEI-YUAN LUEH
Title: INSTRUCTION SCHEDULING
Docket No.: ITL.1096US (P18491)
Express Mail: EV 372702094 US
Atty: Sanjeev K. Singh Under 37 C.F.R. § 10.9(b), Reg. No. 28,994, (713) 468-8880

Sheet 1 of 4

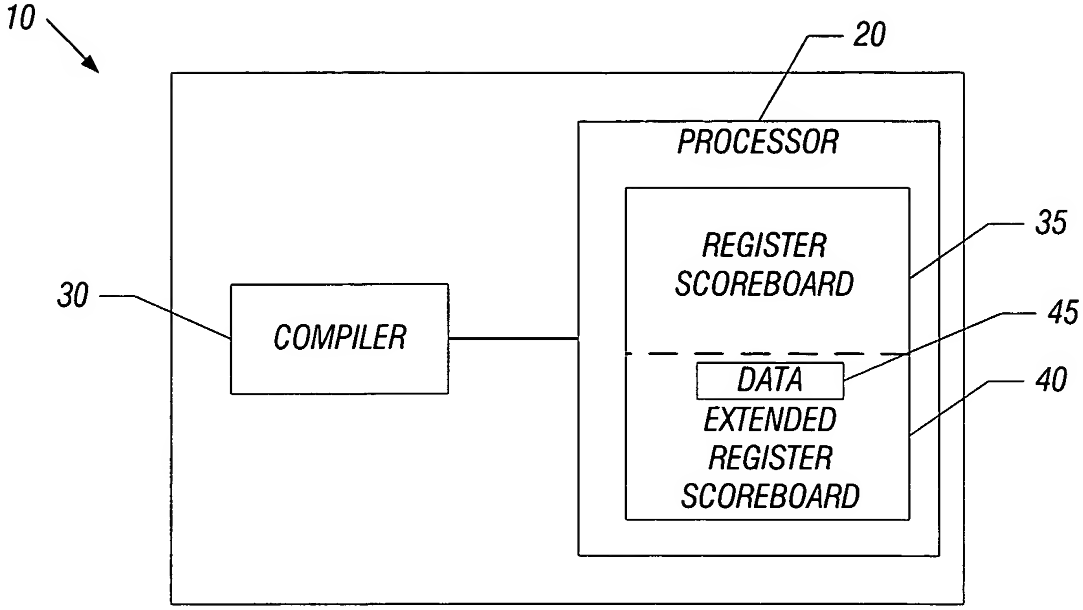

FIG. 1

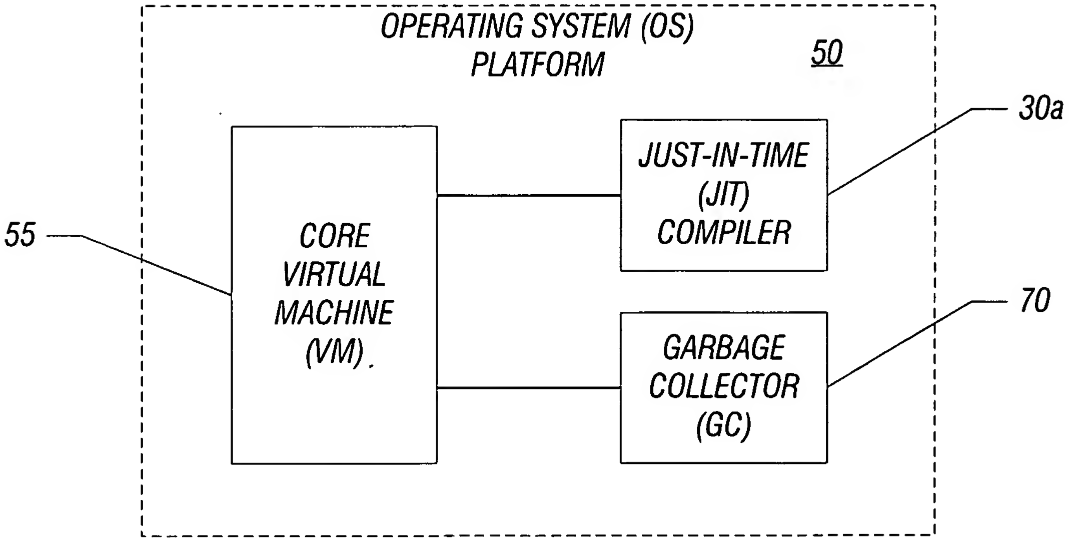
OPERATING SYSTEM (OS) PLATFORM
50
30a
55
CORE VIRTUAL MACHINE (VM)
JUST-IN-TIME (JIT) COMPILER
70
GARBAGE COLLECTOR (GC)

FIG. 2

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Sheet 2 of 4

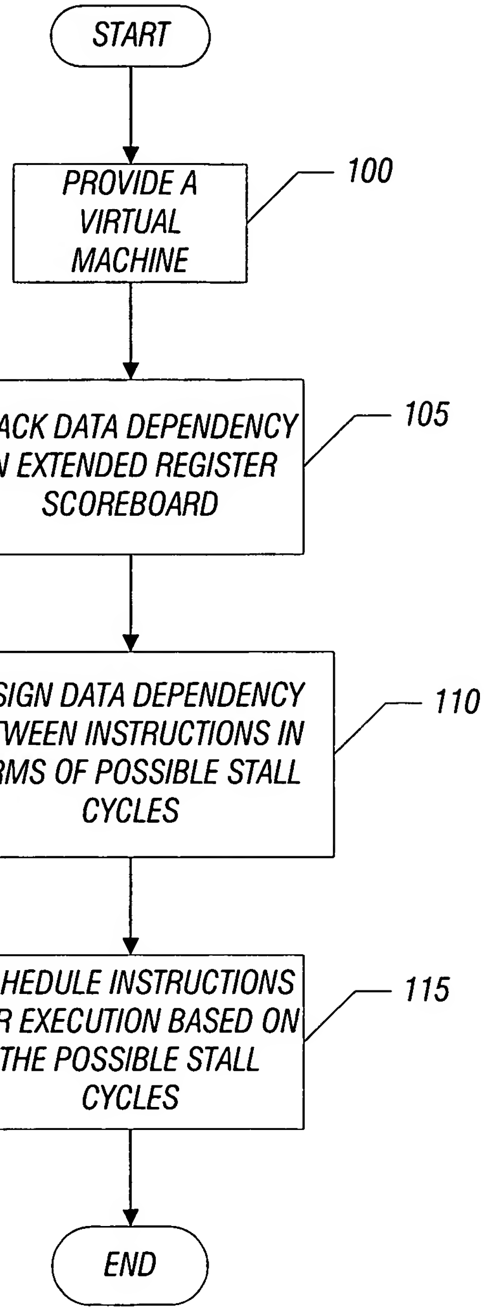
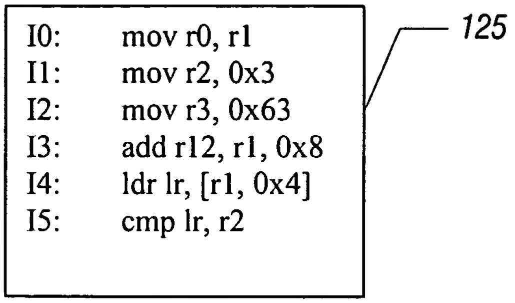
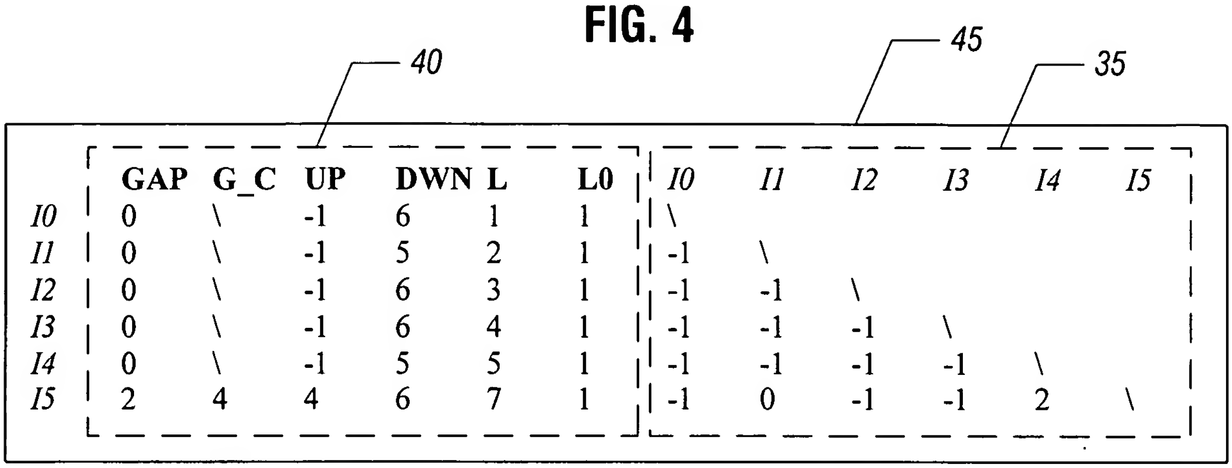

START
PROVIDE A VIRTUAL MACHINE
100
TRACK DATA DEPENDENCY IN EXTENDED REGISTER SCOREBOARD
105
ASSIGN DATA DEPENDENCY BETWEEN INSTRUCTIONS IN TERMS OF POSSIBLE STALL CYCLES
110
SCHEDULE INSTRUCTIONS FOR EXECUTION BASED ON THE POSSIBLE STALL CYCLES
115
END

FIG. 3



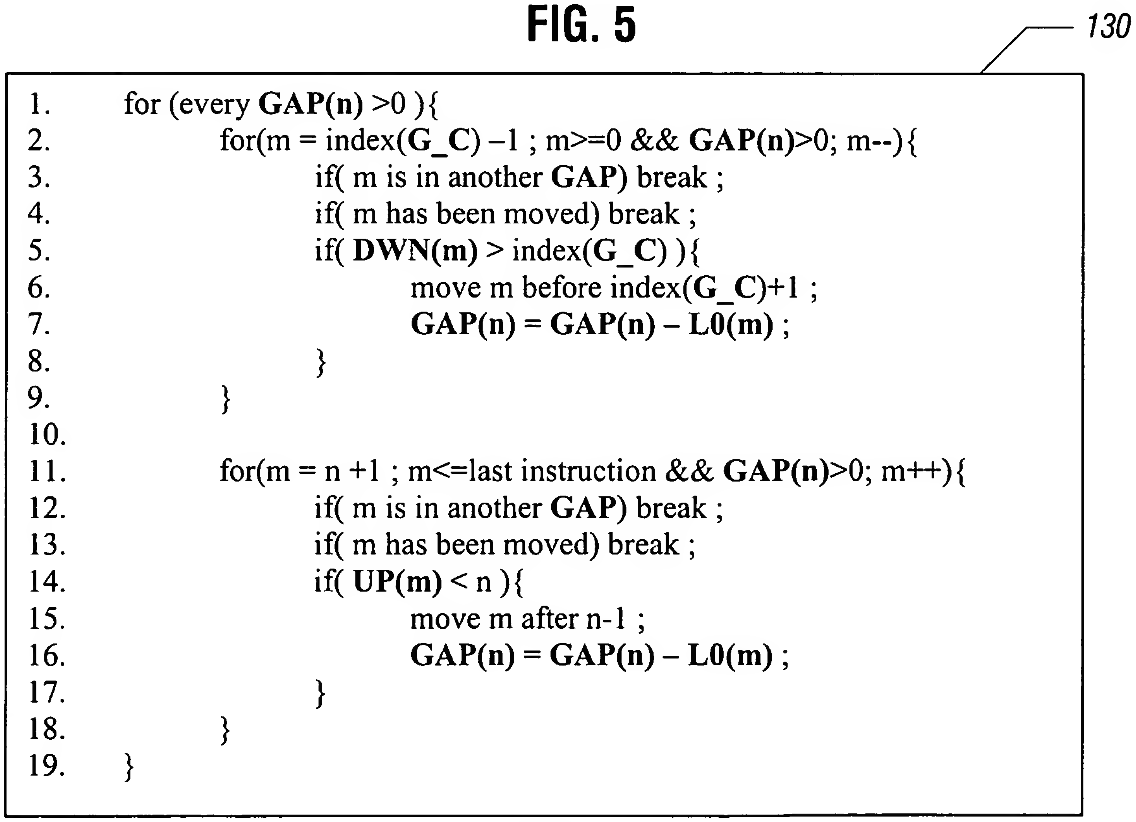
```
I0:     mov r0, rl
I1:     mov r2, 0x3
I2:     mov r3, 0x63
I3:     add r12, rl, 0x8
I4:     ldr lr, [rl, 0x4]
I5:     cmp lr, r2
```

FIG. 4



	GAP	G_C	UP	DWN	L	L0	*I0*	*I1*	*I2*	*I3*	*I4*	*I5*
I0	0	\	-1	6	1	1	\					
I1	0	\	-1	5	2	1	-1	\				
I2	0	\	-1	6	3	1	-1	-1	\			
I3	0	\	-1	6	4	1	-1	-1	-1	\		
I4	0	\	-1	5	5	1	-1	-1	-1	-1	\	
I5	2	4	4	6	7	1	-1	0	-1	-1	2	\

FIG. 5



```
for (every GAP(n) >0 ){
        for(m = index(G_C) –1 ; m>=0 && GAP(n)>0; m--){
                if( m is in another GAP) break ;
                if( m has been moved) break ;
                if( DWN(m) > index(G_C) ){
                        move m before index(G_C)+1 ;
                        GAP(n) = GAP(n) – L0(m) ;
                }
        }

        for(m = n +1 ; m<=last instruction && GAP(n)>0; m++){
                if( m is in another GAP) break ;
                if( m has been moved) break ;
                if( UP(m) < n ){
                        move m after n-1 ;
                        GAP(n) = GAP(n) – L0(m) ;
                }
        }
}
```

FIG. 6

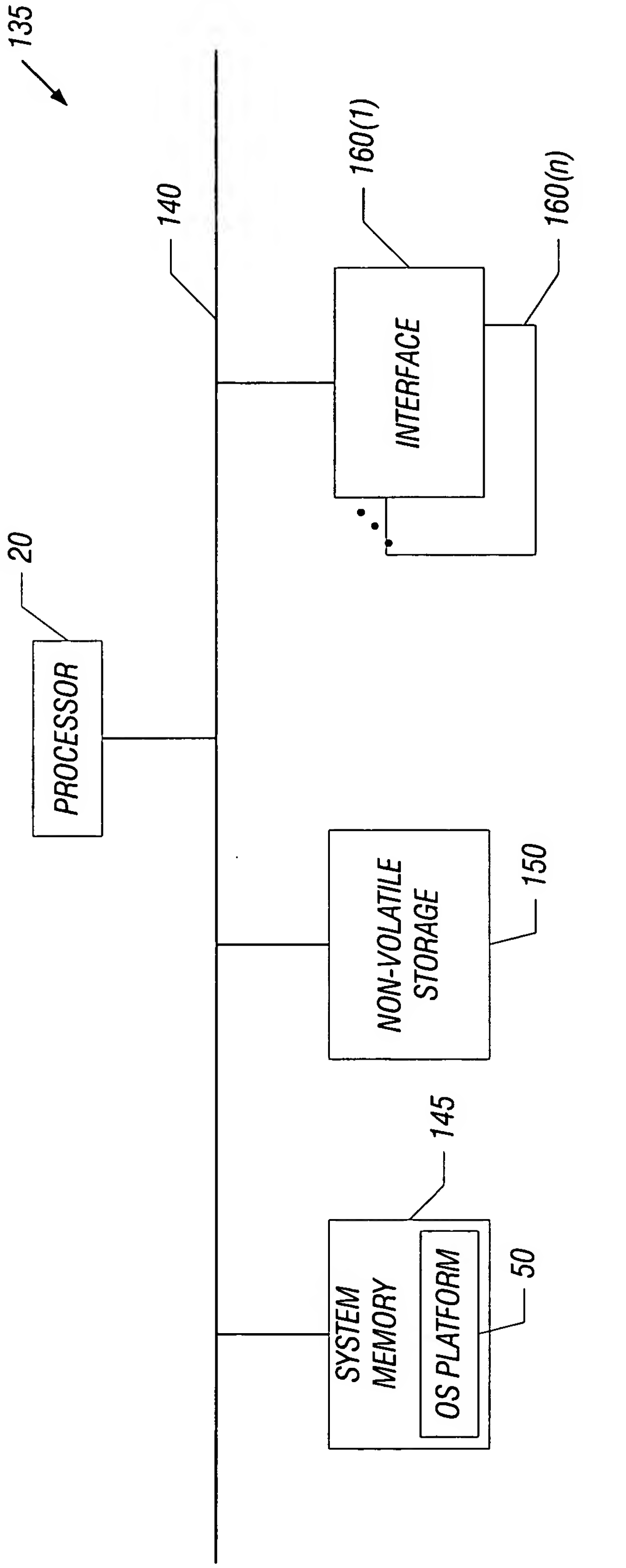

135
140
160(1)
160(n)
INTERFACE
20
PROCESSOR
NON-VOLATILE STORAGE
150
145
SYSTEM MEMORY
OS PLATFORM
50

FIG. 7